

CLAIMS

1. A carton blank for a carton, said carton blank being formed from a sheet material and comprising a plurality of foldably connected panels which form the walls of the corresponding carton, said panels comprising main panels separated by a plurality of longitudinal folds and arranged to form pairs of opposing side walls in said corresponding carton, a first pair of main panels each being foldably connected at either end to a respective end panel, said end panels being arranged to form opposing end walls in said corresponding carton, each end wall comprising first and second end panels, and a second pair of main panels each being foldably connected at either end to a transverse edge of a respective end flap, wherein said blank is foldable to provide said corresponding carton in which the transverse edges of the opposing side walls formed by said second pair of main panels are arranged in general correspondence with the longitudinal edges of adjacent respective end panels and the transverse edges of the respective end flaps connected thereto, and wherein at least one of said first end panels is provided with an end tab foldably connected thereto and adapted for fixation to a side wall or to an underside of the corresponding second end panel in said corresponding carton.
2. A carton blank as claimed in claim 1, in which the blank is arranged to form a carton having four side walls.
3. A carton blank as claimed in claim 1 or claim 2, in which the at least one first end panel provided with an end tab is provided with an end tab foldably

connected via a transverse fold to an end of said at least one first end panel opposite the end thereof foldably connected to the respective main panel.

4. A carton blank as claimed in claim 3, in which the end tab is adapted to be folded for fixation to a side wall.
- 5 5. A carton blank as claimed in claim 3, the arrangement being such that the end tab is fixable to the underside of the corresponding second end panel foldably attached to the side wall opposite the side wall formed by the main panel to which said end tab is indirectly connected via the intervening respective first end panel.
- 10 6. A carton blank as claimed in claim 5, the arrangement being such that the end tab is fixable to the underside of said second end panel so that the transverse fold connecting said first end panel to the respective main panel is substantially aligned with a transverse fold connecting said corresponding second end panel to the respective main panel.
- 15 7. A carton blank as claimed in claim 5 of claim 6, the arrangement being such that, in the corresponding carton, the end tab is folded through approximately 180° once the second end panel is secured in position.
8. A carton blank as claimed in any previous claim, in which the end tab is adapted for fixation by adhesion using a suitable adhesive agent.
- 20 9. A carton blank as claimed in any previous claim, in which the end tab is sized and shaped to provide optimal interaction between the various end wall components in the corresponding carton.

10. A carton blank as claimed in claim 9, in which the end tab is sized and shaped for fixation to a portion of the underside of the corresponding second end panel that does not contact an adjacent end flap in the assembled carton.
- 5 11. A carton blank as claimed in claim 9 or claim 10, in which the adjacent end wall components are sized and shaped to contact one another at points not covered by the fixed end tab.
12. A carton blank as claimed in any previous claim, in which the sheet material comprises cardboard.
- 10 13. A carton blank as claimed in any one of claims 1 to 12, in which the sheet material comprises a plastics material.
14. A carton blank as claimed in any previous claim, formed from a single piece of sheet material.
- 15 15. A carton blank as claimed in any previous claim, in which the main panels comprise generally rectangular panels, the longitudinal folds separating the main panels being substantially parallel to one another.
- 20 16. A carton blank as claimed in any previous claim, in which at least a first main panel is provided with a side tab foldably connected to a longitudinal edge thereof, said tab being adapted for fixation to a further main panel the longitudinal edge of which is adjacent the longitudinal edge of said first main panel in the corresponding assembled carton.
17. A carton blank as claimed in claim 16, in which the side tab is substantially the same length as said first main panel.
18. A carton blank as claimed in claim 16 or claim 17, in which the side tab is fixable using an adhesive.

19. A carton blank as claimed in any previous claim, in which the first pair of main panels have substantially the same width in the transverse direction from the second pair of main panels.
20. A carton blank as claimed in any previous claim, in which the main panels are of substantially equal length in the longitudinal direction.
21. A carton blank as claimed in any previous claim, in which the main panels within each of said first and second pairs of main panels are of substantially equal dimensions such that the carton blank may be assembled into a corresponding carton in which opposing walls of substantially the same length and width provide a carton with substantial symmetry.
22. A carton blank as claimed in any previous claim, in which the end panels are foldably connected at the transverse end of the respective main panels, and are sized and shaped to form end walls in the corresponding carton which provide, in conjunction with the adjacent side walls, a substantially continuous enclosure of the interior void defined within the corresponding assembled carton.
23. A carton blank as claimed in any previous claim, in which the transverse edge of each end flap comprises a transverse fold, wherein the end flap is continuous with the respective main panel and separated therefrom by said transverse fold.
24. A carton blank as claimed in any one of claims 1 to 22, in which each end flap is connected to its respective main panel via a connecting portion, which is equidistant from either end of the transverse edge of said respective main panel.

25. A carton blank as claimed in any previous claim, in which the end flaps and/or end panels are provided with one or more cutaway portions that permit contact between end wall components positioned on either side thereof in the assembled carton.
- 5 26. A carton blank as claimed in any previous claim, in which corresponding end panels and end flaps are adapted to be fixed together in the corresponding carton to provide secure opposing end walls.
27. A carton blank as claimed in claim 26, in which said end panels and end flaps are mutually fixable using an appropriate adhesive.
- 10 28. A carton blank as claimed in any previous claim, in which the blank is foldable into a carton in which the opposing side walls formed by the second pair of main panels are curved.
29. A carton blank as claimed in claim 28, in which the opposing side walls formed by said second pair of main panels are curved outwards, i.e. in a convex manner, in the assembled carton.
- 15 30. A carton blank as claimed in claim 29, in which the transverse edge of each end flap foldably connected to the respective main panels is curved and the end panels have corresponding curved opposing longitudinal edges.
31. A carton blank as claimed in claim 30, in which the blank is arranged such that, in the assembled carton, transverse edges of the opposing side walls formed by the second pair of main panels are arranged in general correspondence with the curved longitudinal edges of adjacent respective end panels and the curved transverse edges of the respective end flaps,
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whereby said opposing side walls formed by the second pair of main panels have a curved profile in the transverse direction.

32. A carton blank as claimed in any one of claims 29 to 31, in which the curved transverse edge of each end flap is foldably connected to the respective main panel via a connecting portion that is approximately equidistant from either end of said curved edge.

33. A carton blank as claimed in claim 32, in which said connecting portion foldably connects said end flap to said respective main panel at a point approximately equidistant from either end of the transverse edge of said respective main panel.

34. A carton blank as claimed in any previous claim, wherein a pre-cut band defined by cuts or perforations is provided in the sheet material to define a tearable band or strip in the corresponding carton.

35. A carton blank as claimed in claim 34, wherein the pre-cut band spans the carton blank in the transverse direction.

36. A carton blank as claimed in claim 34 or claim 35, wherein a grip tab is provided to facilitate a user in pulling the tearable band.

37. A carton blank as claimed in any one of claims 34 to 36, wherein the blank is formed from a fibrous sheet material and the pre-cut band runs in generally the direction of the constituent fibres to permit a clean tear along the pre-cut edges of the tearable band.

38. A carton blank substantially as hereinbefore described with reference to and as illustrated in Fig. 1 or Fig. 2 of the accompanying drawings.

39. A carton formed from a carton blank as claimed in any previous claim.

40. A method of forming a carton from a corresponding carton blank as claimed in any one of claims 1 to 38, the method comprising the step of fixing the end tab foldably connected to at least one of the first end panels to a side wall or to the underside of the corresponding second end panel.
- 5 41. A method as claimed in claim 40, wherein the end tab is fixed to the side wall or corresponding second end panel using a suitable adhesive.
42. A method as claimed in claim 41, wherein the adhesive is pre-applied to the surface of the end tab to be fixed to a side wall or corresponding second end panel in the formation of the carton.
- 10 43. A method as claimed in any one of claims 40 to 42, wherein the method comprises the following sequential steps:
- a) folding the main panels along their respective longitudinal folds to form the side walls of the carton; and
  - b) forming the end walls.
- 15 44. A method as claimed in claim 43, wherein the side walls held in the desired arrangement prior to the step of forming the end walls.
45. A method as claimed in claim 44, in which the side walls held in the desired arrangement by means of a side tab foldably connected to a longitudinal edge of a first main panel.
- 20 46. A method as claimed in claim 45, wherein the method includes the step of fixing a first main panel to a further main panel brought adjacent thereto in the folded arrangement by fixing a side tab foldably connected to said first main panel to said further main panel.

47. A method as claimed in any one of claims 43 to 46, in which each end wall is formed by folding and fixing the respective end panels and end flaps.

48. A method as claimed in claim 47, in which the process of forming each end wall comprises the following sequential steps:

5 a) folding the first end panel having the end tab connected thereto and holding the first end panel in position by fixing the end tab to a side wall or to the underside of the corresponding second end panel, the end tab having itself been folded into the appropriate configuration;

b) folding the opposing end flaps into position; and

10 c) folding the second end panel and securing in position.

49. A method as claimed in claim 48, in which the end flaps are secured in position using an adhesive prior to the step of folding the second end panel.

50. A method as claimed in claim 47, in which the process of forming each end wall comprises the following sequential steps:

15 a) folding the first end panel having the end tab connected thereto and holding the first end panel in position by fixing the end tab to a side wall or to the underside of the corresponding second end panel, the end tab having itself been folded into the appropriate configuration;

b) folding the second end panel and securing it in position;

20 c) folding the opposing end flaps and securing in position.

51. A method as claimed in any one of claims 47 to 50, in which the end flaps are fold substantially simultaneously.



52. A method as claimed in any one of claims 43 to 51, in which an item or items to be stored are inserted into an interior void defined by the assembled side walls prior to the step of forming the end walls.

53. A method as claimed in claim 52, in which both end walls are formed substantially simultaneously.

54. A method as claimed in any one of claims 43 to 51, in which a first end wall is formed and an item or items to be stored is/are inserted into an interior void defined by the assembled side walls and the first end wall prior to the second end wall being formed.

55. A method as claimed in any one of claims 40 to 55, in which the end tab, and/or the side tab, and or the end panels and/or the end flaps are secured in position by means of an adhesive.

56. A method as claimed in claim 55, in which the adhesive is pre-applied

57. A method as claimed in any one of claims 40 to 56, in which the end tab is secured to a side wall.

58. A method as claimed in any one of claims 40 to 56, in which the end tab is secured to the underside of the second end panel.

59. A method substantially as hereinbefore described, with reference to and as illustrated in the accompanying drawings.